The Artist and Architect: Creativity and Innovation Through Role-Based Design

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This article is the second installment in a four-part Educational Technology series exploring a contemporary perspective on the process of instructional design. In this article, the authors reintroduce the framework of Role-Based Design (RBD) and describe practical strategies for its integration into design workflow. Next, they examine their design process through a role-by-role breakdown, beginning with the Instructional Artist and Instructional Architect. They present the innate values, perspectives, responsibilities, and contemporary practices that characterize each role. Finally, they introduce an authentic instructional problem from the perspective of each RBD role and conclude with a synopsis of the following two installments in the RBD series.

"Leonardo Da Vinci combined art and science and aesthetics and engineering; that kind of unity is needed once again..." Ben Shneiderman (2002)

Technology and aesthetics are deeply embedded in our daily lives (McCarthy & Wright, 2004; Parrish, 2005). From text-messaging to social-networking, digital video recording to high-definition video chat, technology has become threaded throughout our existence by means of communication, socialization, information, and entertainment. Our experiences with and through technology are ingrained in our daily lives. However, within instructional design, the recognition, advancement, and attentive design of such experiences and how they might transform the online learner experience is often overlooked or disregarded in favor of objective and theoretical endeavors. McCarthy and Wright (2004) suggest that humans have strongly entrenched interactions and deeply rooted experiences with technology, particularly in terms of aesthetic engagement, situated creativity, centers of value, and sense making. Although the final three elements have strong roots in instructional design, we contend that a learner’s aesthetic engagement with the technological products we design plays a vital role in the future of our field.

Within the field of instructional design, the term ADDIE (i.e., analysis, design, development, implementation, and evaluation) is used to present a universal and vernacular overview of the design process, structuring the work of designers into a sequence of steps leading to a completed design (Hokanson & Miller, 2009). Although many variations of ADDIE exist within the instructional design field (cf. Molenda, 2003), the primary concentration of these processes involves the completion of technological and pedagogical requirements. We believe the limitations of this design process often promote only incremental increases in production and educational efficiency, and the process itself is in need of fundamental transformation. As a field, we must deviate from following codified design algorithms to a new way of designing focused on project values, responsibilities, and activities. This is the foundation of Role-Based Design, which is based on a series of archetypes, and is a selection of real professions and applicable perspectives for professional behavior in instructional design.

Role-Based Design (see Figure 1) is a framework centered on promoting creativity and innovation in the field of instructional design, and is comprised of four roles: the Instructional Artist, Architect, Engineer, and Craftsperson. These roles represent the range of the design process, and although they are presented in linear fashion, they habitually overlap and complement one another through a balanced set of values, perspectives, and project responsibilities.

In the RBD framework, the artist represents creative and radical exploration through unrestrained ideas, experimentation, play, and valued failure. The architect symbolizes holistic understanding of the problem space and relative context through balanced inquisition and critical examination. The engineer is responsible for ensuring theoretical and practical soundness of the proposed solution through grounded and scientific attentiveness to the utility, stability, usability, and scalability of the medium and technological solution. In a political light, the engineer represents the necessary checks and balances of RBD.

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Finally, the **craftsperson** encompasses a mastery of methodology in a medium, an openness to innovation with a capacity for adaptation to context, and a self-fulfilling crusade to advance quality both in the end solution and one’s own skill set throughout completion of every project.

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**Role-Based Design as a Means to Innovative Design**

Before we explore deeper into the unique characteristics of the artist and architect, we take a brief step back and restate our initial reasoning for RBD by explaining what we believe is the relevant divergence in practice in the field. We consider the traditional Instructional Design (ID) model of professional practice to be one of effective development. We contend that instructional designers must surpass the pedagogical and technical issues of developing theory-based processes and products (Wilson, 2005). This, we believe, is the practice of **affective design**.

Frequently viewed as a superficial process, affective design (i.e., the design of experiences, as opposed to products or processes) is often disregarded in lieu of a focus on utility and efficiency (Tractinsky, 2004) and is traditionally relegated to graphic designers late in the development process (Parrish, 2005). In contrast to effective development, affective design places aesthetics at the core of the design process, in harmony with utility, usability, and sound pedagogy. (For the purposes of this article, aesthetics is considered to include the emotional connections and experiences that exist between users and objects.)

Within affective design, the project needs-assessment is no longer perceived as a means to an end, but rather affords opportunities for transformation of staid instructional processes and practices. Transformation (i.e., a leap in efficiency or effectiveness that creates opportunities to enhance the nature of the instructional experience) is the goal of the affective design process (Wilson, 2005).

Innovation and risk are also valued commodities of affective design, in which project limitations become opportunities as opposed to constraints on development. In essence, affective design is a divergent technique of attacking the problem from a different, more pioneering perspective. Ultimately, a solution evolves from the process in the form of a learning experience rather than an instructional product (Wilson, 2005). We contend that only limited and incremental improvements are possible through the current design process, whereas seeking the development of a true learning experience can lead to significant improvement.

To clarify our use of innovation in this context, we draw upon Celsi and Wolfinbarger's (2002) categorization of innovation as continuous, dynamically continuous, or discontinuous. Modest levels of innovation may occur at a continuous level, with non-significant improvements in technology and with no change in “socio-cultural behavior” (p. 65). Significant technological advances that do not alter socio-cultural behavior are described as dynamically continuous. This, we believe, is the present state of affairs in the world of instructional design, and specifically in the development of technologies for online learning. Only through design and implementation of discontinuous innovations do we find significantly altered behavior in the adopting group. Involving both significant technological and socio-cultural change, these are the changes sought through RBD. We hope to encourage those projects that stir up the status quo and inspire others to tunnel out of their perpetual technological or pedagogical ruts.

The RBD framework attempts to encourage a balance of affective design and effective development by interweaving the roles and their inherent values strategically across the design process. In response to Norman's (2004) charge, “Can beauty and brains, pleasure and usability, go hand in hand?” (p. 8), we have brought together roles that balance aesthetics and pedagogy, holistic examination and scientific reasoning, and innovation and creativity.
Table 1. Practical Role-Based Design integration strategies.

SUPPLEMENTING CURRENT PROCESSES
Who Multi-person design teams engaged in larger instructional design projects
When Over the course of an extended project
How Role-based design is applied as a supplement to an existing design process; one member of the team is designated as responsible for each role throughout the project: artist, architect, engineer, and craftsperson.

ORGANIZING THE DESIGN EFFORT
Who Individual instructional designers with responsibility for the complete design project
When Sequentially through the design project
How Role-Based Design can be used as a set of reminders throughout the design process to check the application of values in a project; for example, a brief period of time, such as a half-day, can be scheduled for the designer to work as the artist. This would help include new and innovative ideas into the design process.

CLARIFYING EXPERTISE AND RESPONSIBILITY
Who Individual members of an instructional design team
When During an extended design project
How Role-Based Design can be used as an encouragement and structure for collaborative work. Individuals with assigned roles can act as in-house consultants or experts on a design project. For example, one designer may seek a consultation with the designated instructional engineer on a project regarding technical issues. At the same time, rotating project responsibilities develops the skills of all design team members.

PROFESSIONAL DEVELOPMENT
Who Experienced instructional designers who recognize the need for a balanced approach in their work in design
When Throughout a professional career
How Role-Based Design advocates a balanced approach to the design process. Using RBD as a template for personal reflection and evaluation, individual designers can identify their weaknesses and seek to develop their skills. For example, a designer may seek to advance his or her skills in creativity and aesthetics, and could concentrate professional development in that area.

RETHINKING EVALUATION
Who Instructional design teams or individual instructional designers
When At the completion of design projects
How A designated instructional architect can review the course of a given project acting as the convener of a project review. Using Role-Based Design, the other roles can be assigned during the project review, and each role represented (e.g., instructional craftsperson) can reflect and advocate for the performance of that part of the team. Similarly, individuals can sequentially but formally evaluate their own performance through the design process.

Practical Integration Strategies in Role-Based Design
At this point, it is important to note that we are not calling for an upheaval of the design workflows and models that have shaped our field. Instead, we recommend that a simple re-conceptualization of one’s design values and perspectives may lead to more compelling solutions and pioneering insights.

Application of RBD can occur throughout the design process. RBD may be used by multi-person teams with each member taking responsibility for a role throughout the life of a project, or by individual designers adopting each role in turn. Most instructional design today focuses on the role of the instructional engineer, and encouragement is needed for other roles to develop within the field. We have included five strategies for practical implementation of RBD into an existing design workflow (see Table 1). They range from short-term interim activities to supplementary structure to a set of guidelines for a regular design process.

We will now change lenses to focus more closely on the critical attributes of the artist and architect, the creativity and innovation behind RBD. Within the following sections, we also present examples of contemporary practice in each discipline. In current practice today, there are a range of successful and interesting exemplars for this framework of instructional design.
The Artist (Playful Experimentation)

"Creativity is allowing yourself to make mistakes. Design is knowing which ones to keep."
Scott Adams, creator of Dilbert

In modern society, the role of the artist is important and challenging; it is one of examining and representing new ideas and challenges to society as a whole (Hughes, 1991). As an exemplar for the instructional designer, artists are those who develop ideas that are out of the mainstream, that challenge society to think in different ways, and who also act as the conscience of society. To think of the artist as one who merely represents the world or who applies an aesthetic touch is both limiting and dated; similarly, application of the skills of a graphic artist to the finished product in instructional design is mere decoration. Society in general, and every design project in specific, needs an iconoclast (i.e., an artist) who acts as a foil and as the source of divergent thought to expand understanding.

Artists often advance ideas that are controversial and at odds with much of society. Michelangelo's David, for example, is now revered as classical perfection and beauty, but at the time, in the context of Medici-ruled Florence, it represented much more, including freedom for the residents of Florence and the birth of the Florentine Republic. The statue itself presents a new vision of youthful confidence, a different conception of individual thought, and it is generally believed to represent David prior to his battle with Goliath. Residents of Florence were politically divided during the two-year carving process, and moving the sculpture to its intended location, at the entrance of the Palazzo Vecchio, was fraught with political drama and street fighting. (Additionally, one of the arms was broken and the sculpture was damaged during the expulsion of the Medici from the Palazzo Vecchio.)

At its inception, David was more than a decorative element; it was a statement of ideals and beliefs. Only through the centuries has it come to represent beauty and classical ideals, losing some of its ideological advocacy. Although this level of emblematic, iconic, and historically significant work may be outside the scope of the ID field, we do believe the stimulating and inspirational qualities of divergent thinking can be sought and ultimately achieved within our designs. To change one's work, one must first change the way one thinks.

Values and Perspectives

We view artists as those with a mastery of a medium, with a concentrated and passionate focus on their work and a prevailing consideration for user experience and aesthetics. Artists exhibit heightened levels of creativity, often to the point of working outside of a community or society. An artist incessantly questions the status quo, forcing rules, boundaries, and theoretical constructs to the side, in the pursuit of moving forward, rather than sideways.

The instructional artist is an iconoclast: one who deviates from the expected and embraces experimentation and failure; one who examines ideas that ultimately may not work, paths that are not expected; and one who allows for more diverse conceptualization of the problem and self. Perpendicular to perspectives in ID, the field of creativity training encourages techniques for examining wrong answers and unexpected results to illuminate alternate possibilities and opportunities for design. The wager of the artist is to win big, balancing risk with the potential for substantial increases in quality of design. This height of artistic value, we believe, is where most innovation in the ID field will occur.

Project Responsibilities

Failure, thought-provoking malfunction, unanticipated results, and disturbance of the norm mark the work of the artist; producing and disseminating a finished product is not necessarily important, but serve to advance understanding, conceptualization, and development, and expand the number of fresh ideas. In the context of a design team, the artist is responsible for stimulating divergent thinking at the beginning of a project and providing aesthetic direction and inspiration throughout the project. The artist is the crucial "what if" person on the project team, an instructional explorer that exploits instructional problems as stimuli to experiment with media, explore novel affordances, and design without a net. The instructional artist may work without client or audience, without clear problem definition or sound context, only later attempting to apply what has been learned through the artistic experience as possibilities and opportunities for instructional design practice. Although we acknowledge that the instructional artist reflects a risky and precarious perspective for the ID field, we believe it is a necessity for progression in theory, design, and eventual trans-formation.

Contemporary Practice

Artists and their work are threaded throughout all facets of our lives; from our daily commute to a stroll down an urban street, the work of the artist is present. As the inventive and creative ignition behind their work often remains unnoticed, sometimes purposefully, our interactions and experiences with and within the environment are time and again faithful to the artist's design. Presented below are several examples of contemporary artist practice, ranging from a tin-man installation at a university to digital neon flowers that adorn a city sidewalk.

Andrew Leicester (http://andrewleicester.com/) is
an artist with large public projects distributed around the world. He is renowned for his depth of research and the engagement he draws from the viewer. He creates “iconic landmarks that communities embrace” (Leicester, 2009) and changes the way the public views the world. His work extends beyond the traditional materials of sculpture such as marble or steel and builds works that are integrated into their context and environment. His ideas exemplify conceptualization without boundaries or fear of failure. People enjoy his works, while at the same time, they are challenged to think and revise their understandings of place. His work ranges from a metallic man titled “Platonic Figure” which confronts engineering students at the University of Minnesota to the Zanja Madre water garden and arcade in Los Angeles. One of Leicester’s latest projects engages both memory and the spirit of sustainable design in a proposed landmark of regeneration for Merthyr Tydfil, Wales.

Erik Natzke (http://www.natzke.com) is an interactive designer who “blurs the lines between design and technology” by employing a “keen awareness for how and where to push the limits of the medium without isolating the audience” (Natzke, 2009). Natzke, an award-winning designer for his work in the online interactive realm, is recognized for his divergent exploration of media. He uses Adobe Flash, traditionally used for Website design and online animation, to create vector-based, scalable works of art that are indiscernible from oil paintings to most audiences. A “consistent risk-taker,” Natzke embodies the role of an artist by embracing a willingness to fail while “pushing the boundaries of what previously had been considered possible.” In his words, “imagination, adventure, and a desire to amaze as much as entertain are all part of the driving forces” behind creativity. Our suggestion to instructional designers is to challenge the media continuously and search for innovative methods to capture learners. Designers should use the technology to motivate and engage, much as Natzke continues to inspire through exploration and valued failure.

Finally, Antenna (http://www.antennadesign.com) is a design group founded by individuals with backgrounds in both product and industrial design. Recognized for bridging the gap between artist and architect, Antenna’s vast portfolio includes both conceptual and tangible design for public transit, product design, technology-driven art installations, and environmental architecture. For example, one project involves the design of an interactive video and sound installation featuring “neon flowers that bloom when passersby trigger motion sensors that create an ongoing process of blossoming light sculptures and ambient sound events” (Antenna, 2009). Although Antenna’s work clearly spans all four RBD roles, we chose to include them at the artist level due to their mastery of divergent media that span multiple environmental contexts. This is a lucrative goal for instructional designers who, with the evolving climate of emerging technologies, must seek to engage learners across multiple media and complex domains.

The Artist’s Self-Reflective Design Process

The following questions are designed to create an understanding of different introspective attributes that contribute to the creativity and adventurous nature of an artist. These questions are designed to encourage innovation, seek out transformative opportunities, maintain aesthetics at the core of the design, and focus on the learner experience. These are questions that an artist might explore prior to, during, or upon completion of a project:

- When listening to the initial problem, how did I freely explore a variety of aesthetic, technological, and pedagogical possibilities (rather than applying past design solutions to the current obstacle)?
- What are some of the creative, unique, simplistic, complex, innovative, and even bizarre ideas that I exhausted when exploring the problem?
- In what ways have I successfully failed during my design experimentation?
- What unusual and discordant concepts and ideas do I retain in progress for future projects?

The interwoven balance of art and design in the context of the artist’s role is a complex concept for many designers to grasp. Valuing failure is risky; however, creative design typically involves straying from the well-worn path. This danger and attraction is inherent in the relationship between art and any design. D. H. Lawrence (Lawrence & Herbert, 1998) expressed this relationship as “a recognition of the relation between various things, various elements in the creative flux. You can’t invent a design. You recognize it, in the fourth dimension. That is, with your blood and your bones, as well as with your eyes” (p. 172). This recognition of design, a personal challenge or vendetta of sorts that flows through one’s blood and rattles one’s bones, is our conception of the artist in RBD.

The Architect (Holistic Conceptualization)

“We require from buildings two kinds of goodness: first, the doing their practical duty well; then that they be graceful and pleasing in doing it.”

John Ruskin (1900, p. 36)

The distinctive parallels and departures drawn between architecture and instructional design are nothing new (cf. Gibbons, 2003). There are stark differences, however, between the unique design results and characterizations of architects and instructional
designers. For example, Parrish (2005) has suggested that in contrast to the field of architecture, instructional designers do not communicate the aesthetic elements of their designs. Architects often describe their work "in how its sensory qualities have an emotional impact on users, inspiring them to enter its spaces to participate in intended activities, and in how it increases the significance of what they do there" (p. 4). Successful architects are keen to share their balanced approach to design, as well as the distinctive perspectives they bring to each unique problem, as this texture of communication is what drives the field and inspires future innovation. Their work itself exists as a showcase for discussion, not necessarily to communicate the surface elements of structural stability or the services provided by the building, but as a centerpiece for inspiration and innovation in creating meaningful place out of empty space. Although recent instructional design conferences have increased visibility of innovation in design (e.g., the 2008 and 2009 AECT Design and Development Showcases), we as designers rarely discuss "the qualities of learning environments: the rhythms of instructional activities; methods for creating dramatic tension and revealing unity within content sequences; strategies that provide memorable closure to learning experiences; the visual impact of computer interfaces, texts, and classrooms" (Parrish, 2005, p. 5). These multifaceted elements, we believe, are the mark of the instructional architect.

Values and Perspectives

We view the architect role as one with a balanced approach, one that journeys beyond merely solving the problem to extending the boundaries of project resources past the technical and pedagogical specifications of the project. The architect is one who has a firm conceptual grasp on both the user and environmental contexts of the problem space. Wahlstedt, Pekkola, and Niemelä (2008) have applied the concepts of space and place as defined by architecture and urban design to e-learning environments. The difference is social—"spaces are converted to places by people, their interpretation of a space and their social interactions" (p. 1022). Ultimately, they argue that in order for designers to improve their designs, they must focus on creating places rather than spaces. The instructional architect seeks projects that transform the entirety of the educational experience, having a long view of design and one which is not merely project centered. The RBD instructional architect seeks to create knowledge that is generated by learners through their educational experience and social interactions.

Project Responsibilities

Whereas we see the artist's role as primarily one of creativity, we believe the principal responsibility of the architect is a role that blends innovation with pragmatism, aesthetics with function, and one which views design as a broadly based integrative whole. The architect seeks to balance the roles inherent in any project, ensuring participation of the artist and craftsman, as well as the instructional engineer.

In essence, the instructional architect has a comprehensive and holistic approach to instructional design, values aesthetics and innovation, applies current research, and critically examines solutions to increase user engagement, motivation, and interaction. Simply solving the problem does not satisfy instructional architects; the motivation is to expand the limitations of the project to explore solutions that enhance the learner experience, striving for potential transformation in learning and instructional outcomes.

Contemporary Practice

Two architects, Louis Kahn and David Salmela, have created work that includes all aspects of the design process, from unique concepts to the creation of a highly crafted project at completion. They exemplify the holistic integration of the project; creating work that is functional, beautiful, and innovative in its conception.

Louis Kahn's work spanned continents, but was well known for its respect for materials and the inhabitants of his work. Kahn's library at Exeter Academy structured a series of spaces through the use of wood, concrete, and rough brick; exploring the building one is drawn to the small study spaces at the periphery, the essential destination for the student. Similarly, the Kimball Art Museum in Fort Worth, Texas provides an ethereal place for viewing and experiencing art. Both allow the creation of place by the user, a sense of well-being and belonging seldom present in modern public architecture. Kahn's British Art Museum at Yale University is an example of his complete dedication to detail. While the galleries and organization of space are aesthetically exceptional, even the smaller details of the project show a high level of care in design. While visiting the museum, one can enjoy the larger experience of the well-crafted spaces, but should also pay attention to the concern with which Kahn addresses details such as light switch or fire horn placement. The care inherent in the each project is visible in the minutiae; Kahn's work mirrors Mies' aphorism, "God is in the details."

The Minnesota architect David Salmela demonstrates a comparable level of skill and attention throughout his projects. Site placement is environmentally conscious, material use is both experimental and exemplary, and the designed spaces are wonderful experiences. For example, Salmela's design for Minnesota wildlife photographer Jim Brandenburg's north woods home fuses traditional log cabin qualities
with urban loft living, the tranquil north woods with exquisite modern detail, in a space that blends seamlessly into the surrounding wilderness (Fisher, 2005). Materials limited to simple woods, steel, and stone form the home. Floor to ceiling panes of glass provide mural-size entryways that welcome visitors to the adjacent trees and neighboring wildlife. When one walks throughout the home, there is little separation between house and forest, affording the experience of essentially living with nature, as opposed to living near nature.

Many large, modern construction projects lack this holistic viewpoint and develop by accretion (as within the ID field there is project creep). In the architectural realm, projects continue to change and grow for years; perhaps the worst examples of modern architecture are airports and hospitals, both of which grow piece by piece, and generally lack a complete vision or organizational structure. This is becoming more and more common in many ID technological concoctions that plague teachers and students with designs lacking comprehensive, holistically designed environments that afford rewarding learning experiences in the instructional context. The patched and extended, poorly maintained WebCT site may be analogous to the extended hospital, building a bad experience in a stress filled context. We, as a field, need the self-reflective and holistic instructional architect just as much as the artist.

The Architect's Self-Reflective Design Process

These are questions that an instructional architect might explore prior to, during, or upon completion of a project:

• What are the pedagogical, technological, and aesthetic characteristics/affordances of the proposed solution?
• How does the conceptualized solution provide opportunities for transformation in learning and/or instruction?
• What steps have I taken to create an instructional experience for the learner, as opposed to an instructional product?
• Have all aspects of the work been in balance, from the concept to theoretical basis to the craft of completion?

Developing an understanding of an entire project through a holistic and self-reflective view of the design challenge is critical to any design process. By narrowing the experimental, unrestrained vision of the artist and maintaining learner experience at the core of the design process, the RBD instructional architect's exploration of comprehensive solutions will extend and cultivate a medium's affordances for innovation and potential transformation.

Design Challenge: A Role-Based Design Implementation Scenario

To engage in our own critical reflection of the design process and expand upon our understanding of the interwoven relationships that exist between the four roles, we have found it useful to construct a brief narrative of the RBD process. What follows is a rough interpretation of our discussions in reference to an instructional problem, one not too distant from several variants we have come across when discussing RBD with local K-12 teachers. It is important to note that for purposes of clarity in this narrative, we move through the roles linearly, whereas in practice the four roles would overlap with seamless transitions and reintroductions when necessary throughout the design process.

This design scenario is presented as a “cliffhanger” of sorts, as we only present the problem through the role of the artist and architect in these pages. The engineer and craftperson will continue the challenge at the beginning of the next article in the RBD series.

Problem Scenario Overview

As part of an experimental technology enhancement initiative sponsored through national grant programs and the local school board, ET High School, located in Minneapolis, recently hired four instructional designers to work with all instructional staff. Specifically, the team's goal is to work closely with teachers to design instructional activities tailored to the specific needs of each class. As an initial showcase project for the initiative, the “in-house” design team has been charged with developing and implementing a computer supported collaborative learning environment (CSCL) for a school-wide unit on sustainability and environmental awareness. The instructional solution must be designed for seamless integration throughout all subject matter disciplines within the school (i.e., Literacy, Math, Science, Foreign Language, Physical Education, Art, and History) and must provide students with a solid foundation in “green” living.

The Artist

The instructional artist immediately views the problem as an opportunity to encourage student learning outside of the classroom and as a stimulus for students to bring their studies into the home. The artist suggests the following three ideas:

1. What if we shut off the power to the school for one week? All students would have to carry in the necessary energy to power the school for one week. This would entail students bringing in batteries, flashlights, candles, or small generators (if their parents have them) to power the lights; writing materials for each class; and non-perishable foods to stock the cafeteria.
This would help all students develop an understanding of the true energy cost of the school in a personal and physical manner.

2. **What if we shut down the school bus system and not provide alternative transportation for students to travel to and from school?** This would involve students providing their own means of transportation to their school, saving thousands of dollars in fuel costs and improving physical fitness. Parents would need to be discouraged from driving the children to school, but would be encouraged to change their own routines for their own health and the health of the planet.

3. **What if we fill the gymnasium with trash?** Every student in the school will bring in all of their family's total waste for a week, collect all garbage from the school, and create a mountain of trash in the gym. Waste production and disposal is an important issue for sustainability, and this project would engage students and parents in understanding this important issue.

While these suggestions have not been attempted at the school previously, the artist's primary goal is to provide students with a solid experience and then worry about everything else later (e.g., assessment of learning outcomes, state standards requirements, discipline-specific needs, etc.). Valuing the possibility of failure and of inquisitive self-expression on the part of the learners, the artist believes students will truly feel and respect the reality of their environmental actions through potentially transformative tasks such as these. The “What if...?” entry point becomes the artist's mantra to ensure that creative and divergent solutions are suggested, discussed, and exhausted early in the design process.

**The Architect**

After initial discussion with the artist, the architect begins to narrow the artist's field of view by presenting a global perspective to the mixed bag of ideas on the table. Pragmatic details interact with empirical research; the totality of the experience interacts with the potential technological problems. First, although it may be viable to shut the power off to the school for one week, the school could be in violation of state safety codes and the likelihood of students transporting small generators (deemed more helpful than batteries and flashlights) to school is doubtful. However, the participatory nature of this idea has sparked the architect's interest, and the promotion of inquiry-based, experiential learning is kept on the table.

Second, shutting down the bus system would provide opportunities for classrooms to explore first-hand the transportation costs and energy saved from such an effort. However, the safety of such an excursion for students that do not live in close proximity to the school could be a detrimental and deciding factor. The physical engagement of each learner is recognized as important to the pedagogical value of any such idea.

With respect to the idea of filling the gymnasium with trash, initial reactions included violations to health code and the absence of pedagogical value. However, the architect envisions that this task may encompass opportunities to become part of each student's self-narrative (Wilson, Switzer, Parrish, & the IDEAL Research Lab, 2006) and become an important story they may carry with them for years to come. Although filling the gym with piles of garbage may be logistically difficult, having students share their own self-narratives and stories in an online environment is a creative and innovative idea. The concept of physical events that connect with the real world through active, experiential examinations of an authentic task inspires the architect to push this idea further.

Building upon the artist's vision, the architect suggests the design of an online environment where students will log their family's daily usage of trash, energy, paper, and food—essentially everything they consume during a typical week. The architect envisions that the environment will consist of a strong information-visualization platform to afford sense-making and visceral, emotional responses from students, and believes this idea not only represents an innovative solution, but also lays the groundwork for establishing a more active online community within the school.

However, the initial charge required that the implementation consist of specific elements for each subject matter discipline. How do we incorporate this into each unique curriculum throughout the school? What are the technological requirements of such a solution, and is the timeframe feasible for such a development? Ultimately, does the concept provide opportunities for transformation in learning and instruction across these disciplines, or is it simply an online repository of student-generated data?

**Enter the Instructional Engineer and Craftsperson...**

We will return to this educational challenge in Article 3 of the RBD series to discover what insights the engineer and craftsperson bring to the design, as well as the continued roles of the artist and architect.

**Venturing Forward**

"If the status quo were paradise, it would indeed be a sin to taste the new apples; but since the status quo is much more prison than paradise, we can go ahead."


This manuscript is the second installment in a series of four Role-Based Design articles featured in issues of Educational Technology. In this installment, we have examined the roots of the design process and an
intrinsic illustration of an ill-structured problem as examined by the instructional artist and instructional architect.

It is important to remember that the foundations of RBD and the descriptions provided in this article are not based on existing models or frameworks, but rather grounded in the authentic, intricate, and multi-dimensional roles designers in our society play every day. It is our hope that you, the reader, do not mistake this series as a means for “preaching to the choir” about becoming better designers, or confuse our intention with that of replacing, criticizing, or even dismissing current frameworks and workflows. Rather we are using RBD to stimulate discussion and reflection on current instructional design and development processes across our emergent field. For some, the roles may be, at most, a simple reframing of the values and processes that many experienced designers in our field already encompass and embrace in their work. For others, the roles may provide a motivational sense of place in the complexities of the design process. Whatever the case may be, further discussion and research are suggested to explore these diverse perspectives in the ID field and associated disciplines of design (e.g., Human-Computer Interaction, Interaction Design, Learning Sciences, Computer Science, Visual Communication Design, etc.) to increase the accessibility of design knowledge found in the respective literature and across our community.

The Design Challenge featured in these pages will be completed in the third article of the RBD series by discussing the roles of the engineer and craftsperson in the design process. This article will also present similarly structured interpretations of the instructional engineer and instructional craftsperson, and how they complete the RBD framework. The scientific and research-based logic of the engineer is a role that is well supported in the development of instructional designers today. However, as much work in the field today is manufactured as opposed to crafted, we anticipate that major changes could occur through this proposed reorientation.

In the fourth and final installment of this series, we will provide an authentic narrative of three real-world design problems addressed through practical integration of the four roles and perspectives of RBD. Specifically, we will examine the design of an e-assessment environment that transformed language learning and performance evaluation in post-secondary American Sign Language. Also included will be an examination of the design process of a collaborative, multi-scaffolded hybrid learning environment for geospatial technology integration in K–12 classrooms, and the design of a culturally-iconic urban center for theater performance, production, education, and professional training. Ultimately, we believe that to change and enhance the quality of your design work, you must first change the way you think and the way you act—not only the ways in which you conceptualize a problem space, outline a workflow, or craft a final solution, but also the frameworks and values you reference to formulate an evaluation of a designed solution. As a community of academic and professional designers and researchers of instruction, for physical and virtual spaces alike, we tend to overlook the notion of experience, more specifically the experience of the learner and the instructor, in our recipe-like use of technology (McCarthy & Wright, 2004; Pacey, 1999). We commend and praise objectivity in our research and evaluation as if they were the only means to further practice and advance theory, thereby overlooking the vast and emotionally rich relationships that are often cultivated between learners and technology.

As for RBD, it is a contrived endeavor to promote perspectives that value quality and innovation throughout the design process without examining the evaluative components of design. To this argument we will conclude Article 4 of this series by uprooting RBD and reframing the values and perspectives as an evaluative framework to complement existing models in the field. We will examine RBD as an evaluative model for learner, instructor, and designer experiences; creativity, innovation, and aesthetics; and a measure of future innovation in the field. Additionally, we have invited special guest commentators to participate in the final installment and to provide a critique of the RBD framework to stimulate fresh insight for the design and evaluation of future innovative and transformative learning experiences.

**Invitation for Your Input**

We would like this exploration of Role-Based Design to exist as an active, participatory investigation of the design processes that foster creativity and innovation in our field. Therefore, we invite you to submit your thoughts and critiques of our role-based perspectives, as well as share your unique design stories and narratives, successful and otherwise, either by e-mail to the authors or by visiting our Role-Based Design community through [http://www.ltspaces.com/rbd](http://www.ltspaces.com/rbd).

**References**


Is Your Design Story Limiting You?

Purposefully Perturbing Our Practices Through Instructional Design “Mashups”

Peter C. Honebein
Richard C. Goldsworthy

Instructional designers are trained to choose instructional methods rationally by considering the conditions and outcomes associated with an instructional situation. However, designers come to these situations with their own design stories as well. Our design stories, constructed over time through learning and practice, not only provide meaning to what we do but also influence why we might perceive one instructional method as more useful than another. The authors argue that our stories, when blithely followed, can limit us from considering unconventional, creative solutions to instructional problems. To overcome this situation, the authors suggest that designers mash-up theory, content, and context in order to perturb their practices and create trouble from which innovative instructional solutions can emerge.

Drill and practice for STD prevention? No! Mastery learning from a constructivist pedagogical perspective? No, no! Didactic lecture for anything? No, no, no!

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Columns to Resume in Next Issue

“Topics for Debate,” the column by Alexander J. Romiszowski; “Learning Trails: Traversing the European Ed Tech Scene,” the column by Kevin Walker; and “New Issues, New Answers,” the column by Marc Prensky, do not appear in this issue. These three columns will resume in the September–October issue of Educational Technology.